Case report

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Ultrasound description and follow up of painful cervical interspinous bursitis in a Polymyalgia Rheumatica patient – a case report

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Abstract

We present a Polymyalgia Rheumatica (PMR) case with active Cervical Interspinous Bursitis (CIB) causing debilitating neck pain as the most intensive symptom of the disease as reported by the patient. CIB was diagnosed and followed by Musculoskeletal Ultrasound (MSUS). MSUS examination of patient's posterior cervical region reviled well demarcated an-/hypoechoic lesions around and cranially of the spinous processes of the sixth and seventh cervical vertebra. The initial detailed sonographic characteristics of the CIB are described, as well as the evolution of lesions size and extent with the treatment and patient's clinical improvement. To our knowledge this is the first detailed sonographic description of CIB in PMR.

Keywords: Cervical Bursitis; Ultrasound; Polymyalgia Rheumatica

Introduction

Polymyalgia Rheumatica (PMR) is the most common inflammatory rheumatic disease in the elderly [1]. It manifests with pain and stiffness localized predominantly in the shoulder and pelvic girdles, but also in the neck and lower back. These symptoms are due to predominantly extraarticular inflammation of synovial lined spaces such as bursae and tendon sheaths [1]. Recently, interspinous bursitis of the cervical and lumbar spine were identified in PMR [2]. Cervical interspinous bursae (CIB) are synovial lined strips, localized near the dorsal side of ligamentum flavum that extend up along the shafts of the spinous processes [3]. Imaging findings of CIB have been reported using 18F-fluorodeoxyglucose (FDG) positron emission tomography/CT (PET/CT) and MRI, but their significance regarding patients' complaints and the disease burden remains controversial [2]. Musculoskeletal ultrasound (MSUS) was confirmed to be a useful tool in improving the classification and management of patients with PMR [4]. However, data about the US characteristics of CIB in PMR is limited to a single report, which describes it as a "hypoechoic swelling surrounding the spinous process C7" [5].

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Case report

We report a 75 five-year-old female patient whose initial and most pronounced complaints were localized in the lower cervical region, spreading later to the shoulder and pelvic girdles. She was referred to our tertiary rheumatology clinic and at examination fulfilled the EULAR/ACR 2012 criteria [6] and was therefore diagnosed with PMR.

At the initial MSUS assessment, there was a subacromial bursa distension in the right shoulder, a minimal effusion in the posterior recess of both glenohumeral joints and bilateral biceps tenosynovitis, as well as an effusion in both hip joints and left sided trochanteric bursitis. There was no synovitis detected on routine MSUS screening of the hands and feet. The acute phase reactants were elevated (CRP 46 mg/dl, ESR 87 mm/h) immunological screening was negative, and there were no pathological findings in the full blood count, biochemistry, and urinalysis.

As the predominant complaints were in the neck, the MSUS examination was extended to this region as well. An Esaote MyLab 8 machine equipped with a 4-15 MHz linear probe was used and the patient was positioned

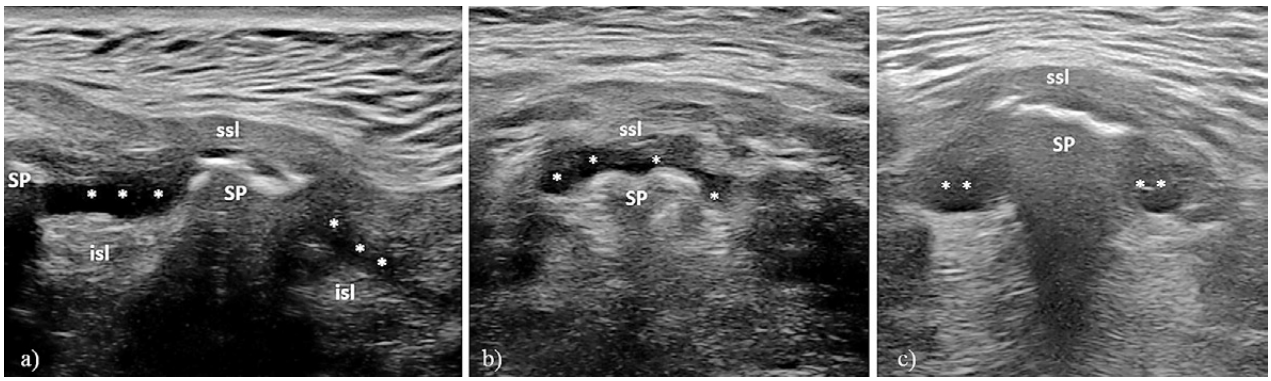

Fig 1. a) Longitudinal midline scan of the cervical spine at C6 and C7 level; b) transverse scan at C6 level; c) transverse scan at the C7 level. There is an-/ hypoechoic well-delineated lesions (asterisks) over and between the spinous processes. The lesions expand in the paramedian space, more at C7 level. SP, spinous processes; SSL, supraspinous ligament; ISL, interspinous ligament; L, lamina.

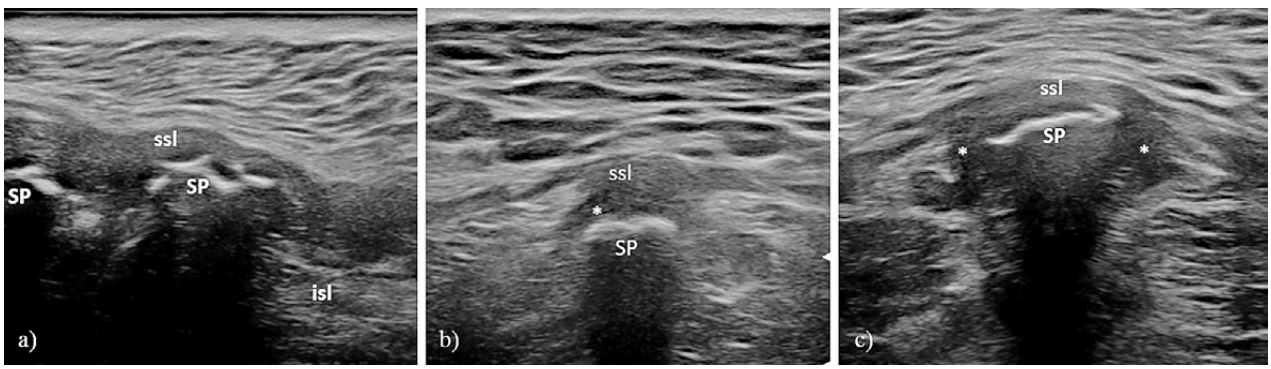

Fig 2. a) Longitudinal; b) and c) transverse scans at the same levels as in figure 1, one month later. The size and expansion of the lesions have decreased significantly (asterisks). (Abbreviations – see Fig 1)

seated with a flexed neck. First of all we performed a longitudinal scan starting from Th1 and proceeding cranially, following the supraspinous ligament. At each cervical level, median and left and right paramedian scans were obtained to evaluate better the extent of possible bursae distension followed by a transverse scan at the level of each cervical spinous process and the corresponding interspinous space. We used the definition for "bursitis" according to EFSUMB guidance for MSUS [7]. In this patient there was a well demarcated an-/hypoechoic lesion above and proximal of spinous process of C7 vertebra, as well as a smaller one above and proximal to the spinous process of C6 (fig 1). In the sagittal plain the lesions extended cranially between the supraspinous and the interspinous ligaments (fig 1a), while in the transverse plane they expanded in the paramedian space, reaching at the maximum about 12 mm away from the midplane (at C7) and exhibited posterior acoustic enhancement, confirming a fluid content (fig 1c). The lesions had sharp borders, without heteroechoic material or mural nodes inside, did not present any power Doppler signal and were compressible to some extent (in respect with their anatomical location) with the transducer. Sonopalpation over these lesions increased and reproduced the patient's typical pain.

Corticosteroid therapy was started, initially at a dose of 0.2 mg per kilogram of body weight. The patient reported significant improvement in her pain and stiffness on the follow up examination a month later. The follow up MSUS examination, done also in one month, was carried out according to the same scanning protocol. The lesions had decreased substantially their size and paramedian expansion and did not present posterior enhancement (fig 2).

At a further follow up visit, carried out another month later, the patient reported no pain and the posterior cervical MSUS scanning showed a complete resolution of the CIB (fig 3).

Discussion

CIB was described in PMR by PET/CT and MRI studies, but its contribution to the disease burden and clinical symptoms still remained controversial [2,4]. On the contrary, in our patient, the presenting, and most troublesome symptoms were related to the cervical bursae in-

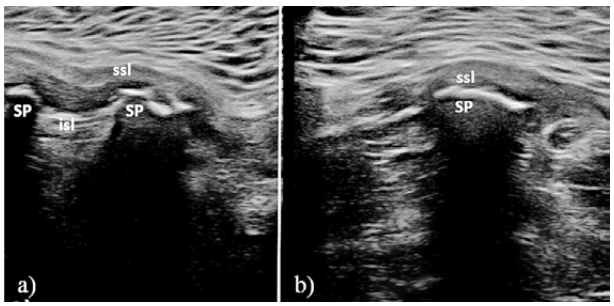

Fig 3. a) Longitudinal and b) transverse scan at the same levels appr. two months later confirmed complete resolution of the described lesions. (Abbreviations – see Fig 1)

flammation. In this case, MSUS allowed not only the accurate identification of the pathology responsible for the patient's complaints, but also enabled us to monitor its resolution with treatment. The reduction in the inflamed bursae dimensions corresponded well with the clinical and laboratory improvement seen in our patient. MSUS has the advantage to be performed simultaneously with, and actually be directed by the clinical examination, as we increased the scope of the usual US assessment of a new PMR patient, including the neck as well. In addition, MSUS is easily repeatable with no exposure to radiation or contrast media. The follow up examinations in the presented case showed eventually complete resolution of the an-/hypoechoic interspinous lesions along with the clinical improvement, confirming the important role that MSUS can play in patients' management in PMR. In addition, we identified signs of enthesopathy and ligamenetopathy of the supraspinous cervical ligament. Enthesopathies are also reported in PMR patients at various sites [4], but their relevance to patients' pain is debatable, having in mind the age group of PMR patients.

The present MSUS description is limited only to the superficial cervical interspinous space as there is no adequate acoustic window to the deeper region. However, as the anatomical data shows that CIB extend up from the Ligamentum Flavum [3], it could be presumed that, the presence of an-/ hypoechoic well-demarcated lesions around the tip of the spinous processes should represents substantial cervical bursae distension. Our report is limited by the lack of MRI conformation, but the follow up exams showed resolution of the MSUS findings along with the clinical and laboratory improvement.

In conclusions, MSUS could reliably identify the presence of clinically active CIB in PMR patients and follow its evolution with treatment.

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